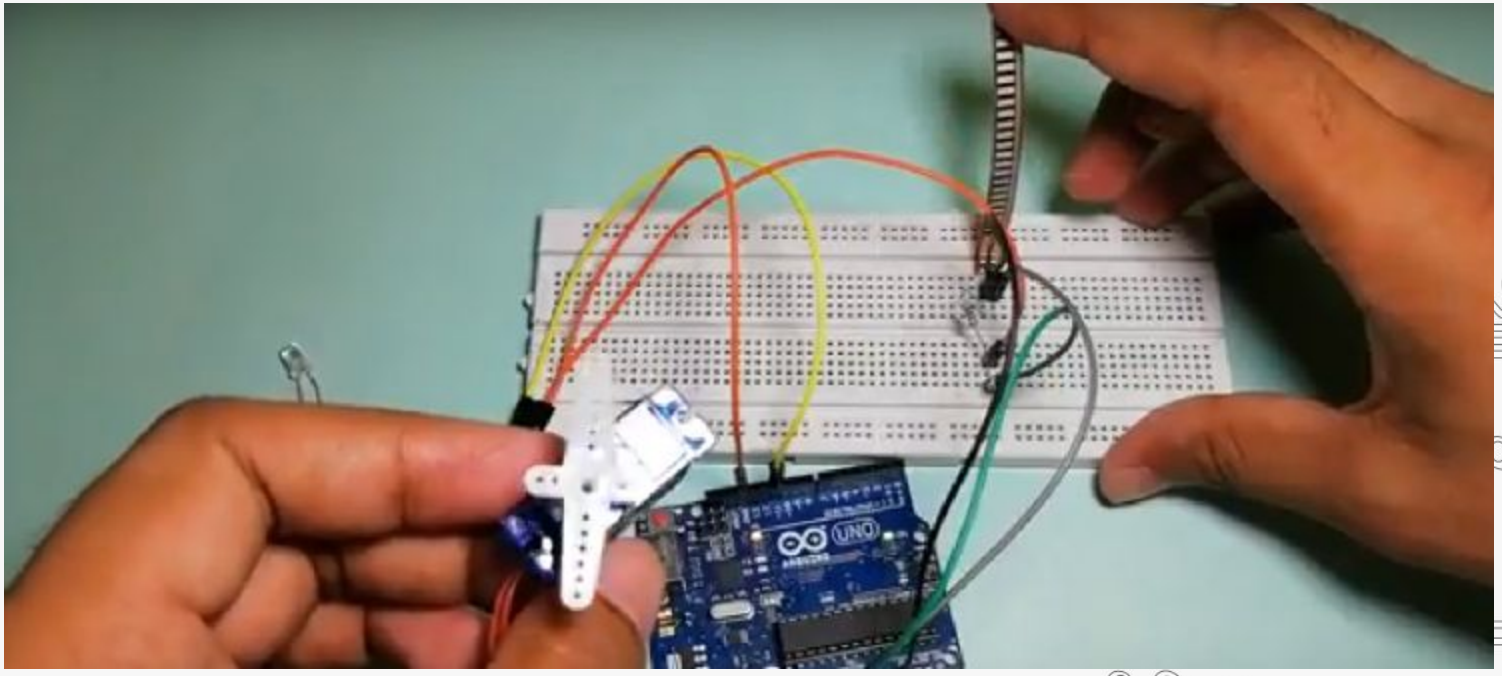
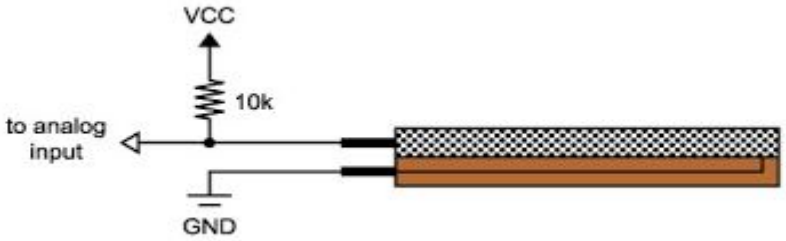
Automatic door lock system using Flex sensor



Flex sensor

A **Flex sensor** or **Bend sensor** is a sensor that measures the amount of deflection or bending . Usually, the sensor is stuck to the surface, and resistance of sensor element is varied by bending the surface. Since the resistance is directly proportional to the amount of bend it is used as goniometer, and often called flexible potentiometer.



Servo Motor

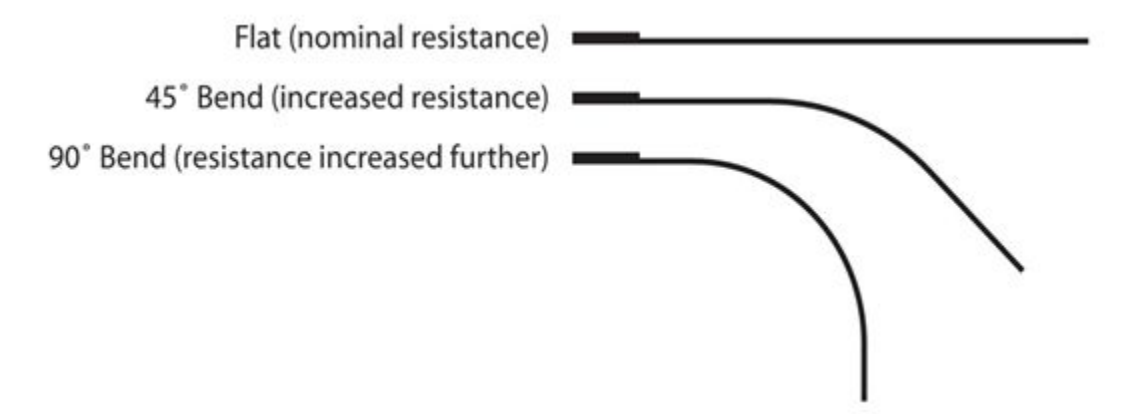
A **Servo motor** is an electrical device which can push or rotate an object with great precision. If you want to rotate and object at some specific angles or distance, then you use **servo motor**. It is just made up of simple **motor** which run through **servo** mechanism.

It consists of three parts:

1. Controlled device
2. Output sensor
3. Feedback system

Working of project

In this project we have interfaced Flex sensor with Servo motor and Arduino Mega. Objective behind this project is to make automatic door lock attached with Servo motor which is automatically controlled by flex sensor. Flex sensor is bled at different angles according to which gate will open.



Components Required

- Arduino Mega
- Flex Sensor
- Servo Motor
- LED
- BreadBoard
- Resistor 10kohms
- Jumper wires

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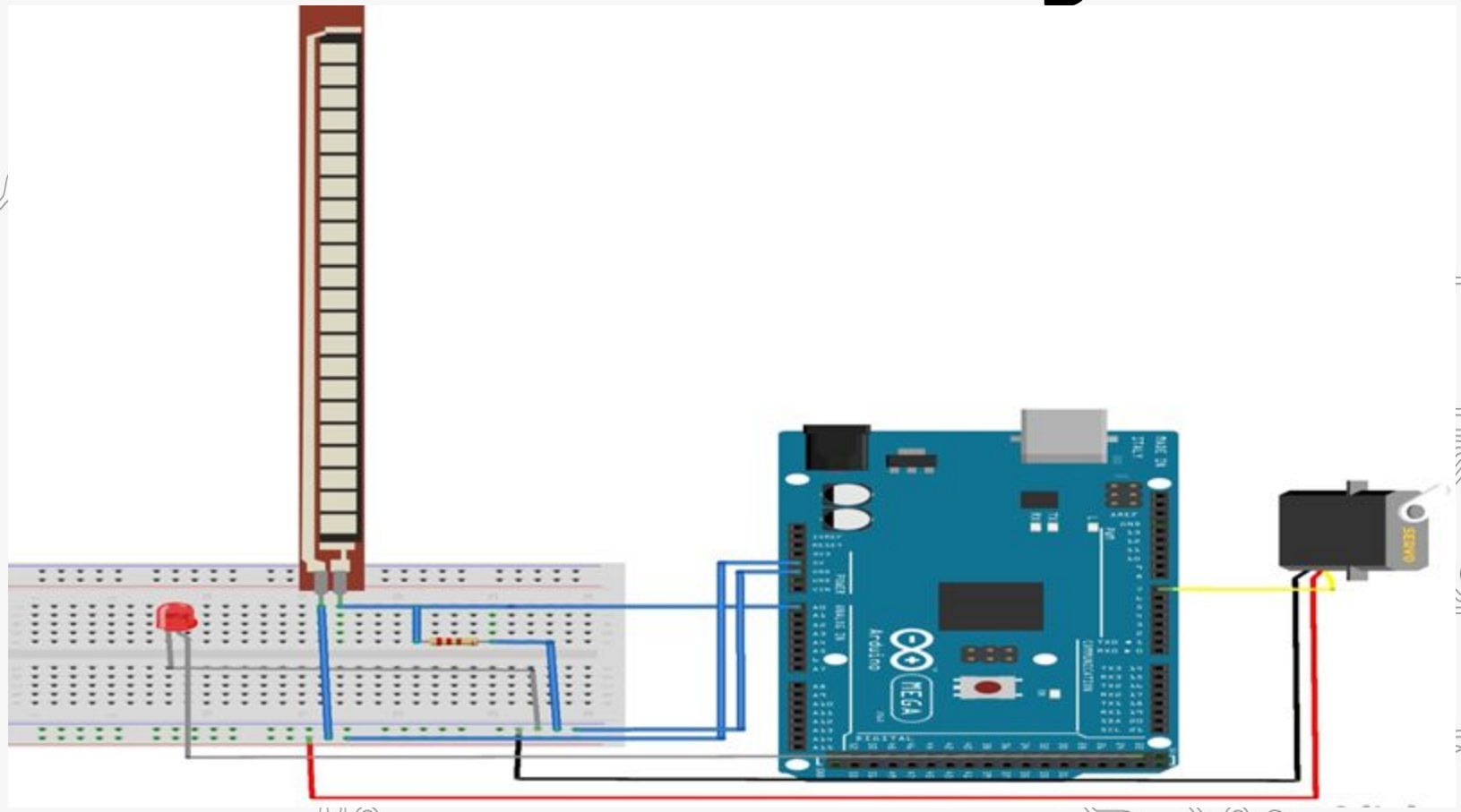
Connection Diagram



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Connections

1. Connect first pin of flex sensor with A0 of Arduino.
2. Connect first pin again with resistor of 10k and then connect resistor with ground pin of Arduino.
3. Connect another pin of flex sensor with Vcc (+5V) of Arduino.
4. Now connect positive of LED with 22 pin of Arduino.
5. Connect negative of LED with ground of Arduino.
6. Connect Red wire of servo with Vcc(+5V) of Arduino.
7. Connect Black wire of servo with GND of Arduino.
8. Connect orange wire of servo with 7 pin Arduino.

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Code

automatic_doorlock_using_flex_sensor | Arduino 1.8.19

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automatic_doorlock_using_flex_sensor

```
#include <Servo.h>

Servo myservo;  // create servo object to control a servo
// twelve servo objects can be created on most boards

int pos = 0;    // variable to store the servo position

void setup() {
  myservo.attach(7);  // attaches the servo on pin 9 to the servo object
  pinMode(22,OUTPUT);
}

void loop() {
  int a =analogRead(A0);
  if(a<180)
  {
 // for (pos = 90; pos <= 180; pos += 10) { // goes from 0 degrees to 180 degrees
    // in steps of 1 degree
    digitalWrite(22,1);
    myservo.write(90);
    delay(15);
    // waits 15ms for the servo to reach the position
```

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```
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void loop() {
  int a =analogRead(A0);
  if(a<180)
  {
 // for (pos = 90; pos <= 180; pos += 10) { // goes from 0 degrees to 180 degrees
    // in steps of 1 degree
    digitalWrite(22,1);
    myservo.write(90);
    delay(15);
    // waits 15ms for the servo to reach the position
  }

  else {
 // for (pos = 180; pos >= 90; pos -= 10) { // goes from 180 degrees to 0 degrees
    digitalWrite(22,0);
    myservo.write(180);
    delay(15);                       // waits 15ms for the servo to reach the position
  }
}
```

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Project Link : https://youtu.be/IdkIHfCM2pw